Volume 227 June 1991

CONTENTS

Two-dimensional flow of a viscous fluid in a channel with porous walls. Stephen M. Cox *page* 1

Chaos in small-amplitude surface gravity waves over slowly varying bathymetry. Michael G. Brown, Frederick D. Tappert and Sekhar E. R. B. Sundaram 35

Interaction of a viscous vortex pair with a free surface. Samuel Ohring and Hans J. Lugt 47

The influence of stratification on secondary instability in free shear layers. G. P. Klaasen and W. R. Peltier 71

Unsteady flow in trailing vortices. S. I. Green and A. J. Acosta 107

Wave forces on three-dimensional floating bodies with small forward speed. Jan Nossen, John Grue and Enok Palm 135

Faraday resonance in rectangular geometry. Makoto Umeki 161

Visual observations of the flow around a half-submerged oscillating sphere. Sadatoshi Taneda 193

Particle dynamics and mixing in a viscously decaying shear layer. E. Meiburg and P. K. Newton 211

Modelling the pressure–strain correlation of turbulence: an invariant dynamical systems approach. Charles G. Speziale, Sutanu Sarkar and Thomas B. Gatski 245

Liquid-metal flow in a backward elbow in the plane of a strong magnetic field. T. J. Moon, T. Q. Hua and J. S. Walker 273

On cell formation in vortex streets. Bernd R. Noack, Frank Ohle and Helmut Eckelmann 293

The stability of countercurrent mixing layers in circular jets. P. J. Strykowski and D. L. Niccum 309

A theoretical study on drop impact sound and rain noise. Y. P. Guo and J. E. Ffowcs Williams 345

Instability of stationary unbounded stratified fluid. G. K. Batchelor and J. M. Nitsche 357

Elliptical vortices and integrable Hamiltonian dynamics of the rotating shallow-water equations. Darryl D. Holm 393

Flame balls stabilized by suspension in fluid with a steady linear ambient velocity distribution. J. Buckmaster and G. Joulin 407

Three-dimensional oscillation characteristics of electrostatically deformed drops. James Q. Feng and Kenneth V. Beard 429

Blocking an inviscid shear flow. MELVIN E. STERN 449

The analysis and modelling of dilatational terms in compressible turbulence. S. SARKAR, G. ERLEBACHER, M. Y. HUSSAINI and H. O. KREISS 473

Particle pressures in gas-fluidized beds. CHARLES S. CAMPBELL and DAVID G. WANG 495

Turbulent Couette flow profiles that maximize the efficiency function. L. M. SMITH 509

Islands in three-dimensional steady flows. C. C. HEGNA and A. BHATTACHARJEE 527

Horizontal jets and vortex dipoles in a stratified fluid. S. I. VOROPAYEV, YA D. AFANASYEV and I. A. FILIPPOV 543

Experimental study of directional solidification of aqueous ammonium chloride solution. C. F. CHEN and FALIN CHEN 567

Lubricated pipelining: stability of core–annular flow. Part 4. Ginzburg–Landau equations. KANGPING CHEN and DANIEL D. JOSEPH 587

Relaxation behind shock waves in ionizing neon. T. J. MCINTYRE, A. F. P. HOUWING, R. J. SANDEMAN and H.-A. BACHOR 617

On strongly nonlinear vortex/wave interactions in boundary-layer transition. P. HALL and F. T. SMITH 641

Air flow and turbulence over complex terrain: a colloquium and a computational workshop. J. C. R. HUNT, F. TAMPIERI, W. S. WENG and D. J. CARRUTHERS 667

REVIEWS

Fluid Physics for Oceanographers and Physicists, by J. Williams and S. A. Elder; Applied Fluid Mechanics, by D. N. Roy; Fundamentals of Fluid Mechanics, by B. R. Munson, D. F. Young and T. H. Okiishi; Intermediate Fluid Mechanics, by R. H. Nunn 689

Studies in Nonlinear Aeroelasticity, by E. H. Dowell and M. Ilgamov 690

Turbulence and Combustion, by V. R. Kuznetsov and V. A. Sabel'nikov 691

Buoyancy-Induced Flows and Transport, by B. Gebhart, Y. Jaluria, R. L. Mahajan and B. Sammakia 692

SHORTER NOTICES 694

INDEX TO VOLUME 227 696